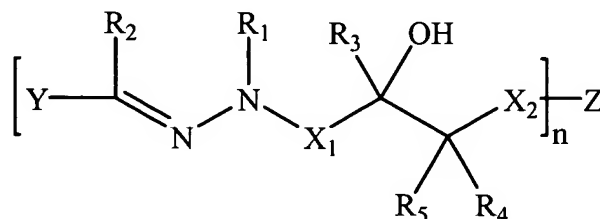


CLAIMS

What is claimed is:

1. An organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(a) a charge transport material having the formula



where n is an integer between 3 and 6;

R₁ and R₂ are, each independently, H, an alkyl group, an alkenyl group, an aromatic group, or a heterocyclic group;

R₃, R₄, and R₅ are, each independently, H, thiol, hydroxyl, carboxyl, an amino group, a halogen, nitro, cyano, an alkyl group, an alkenyl group, an aromatic group, a heterocyclic group, or a part of a ring group;

X₁ and X₂ are, each independently, a linking group;

Y comprises an arylamine group; and

Z is a bridging group; and

(b) a charge generating compound.

2. An organophotoreceptor according to claim 1 wherein Y comprises a carbazole group, a julolidine group, or an (N,N-disubstituted)arylamine group.

3. An organophotoreceptor according to claim 1 wherein X₁ and X₂, each independently, comprise a -(CH₂)_m- group, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR₆ group, a CR₇, or a CR₈R₉ group where R₆, R₇, R₈, and R₉ are, each independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring.

4. An organophotoreceptor according to claim 3 wherein X_1 is a methylene group and R_3 , R_4 , and R_5 are each independently an H.

5 5. An organophotoreceptor according to claim 1 wherein Z comprises a $-(CH_2)_p-$ group, branched or linear, where p is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR_{10} group, a CR_{11} , or a $CR_{12}R_{13}$ group where R_{10} , R_{11} , R_{12} , and R_{13} are, independently, a bond,
10 H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

6. An organophotoreceptor according to claim 1 wherein the photoconductive element further comprises a second charge transport material.

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7. An organophotoreceptor according to claim 6 wherein the second charge transport material comprises an electron transport compound.

8. An organophotoreceptor according to claim 1 wherein the
20 photoconductive element further comprises a binder.

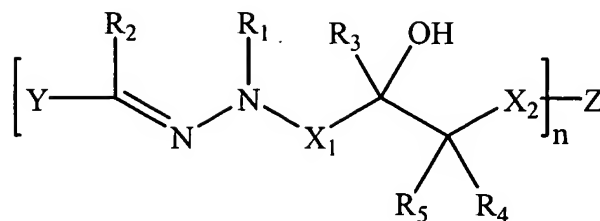
9. An electrophotographic imaging apparatus comprising:

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(a) a light imaging component; and

(b) an organophotoreceptor oriented to receive light from the light imaging
25 component, the organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:

(i) a charge transport material having the formula



where n is an integer between 3 and 6;

R₁ and R₂ are, each independently, H, an alkyl group, an alkenyl group, an aromatic group, or a heterocyclic group;

5 R₃, R₄, and R₅ are, each independently, H, thiol, hydroxyl, carboxyl, an amino group, a halogen, nitro, cyano, an alkyl group, an alkenyl group, an aromatic group, a heterocyclic group, or a part of a ring group;

X₁ and X₂ are, each independently, a linking group;

Y comprises an arylamine group; and

10 Z is a bridging group; and

(ii) a charge generating compound.

10. An electrophotographic imaging apparatus according to claim 9 wherein Y comprises a carbazole group, a julolidine group, or an (N,N-disubstituted)arylamine group.
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11. An electrophotographic imaging apparatus according to claim 9 wherein X₁ and X₂, each independently, comprise a -(CH₂)_m- group, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR₆ group, a CR₇, or a CR₈R₉ group where R₆, R₇, R₈, and R₉ are, each independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.
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12. An electrophotographic imaging apparatus according to claim 11 wherein X₁ is a methylene group and R₃, R₄, and R₅ are each independently an H.

13. An electrophotographic imaging apparatus according to claim 9, wherein Z comprises a $-(CH_2)_p-$ group, branched or linear, where p is an integer between 1 and 20, inclusive, and one or more of the methylene groups is replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR₁₀ group, a CR₁₁, or a CR₁₂R₁₃ group where R₁₀, R₁₁, R₁₂, and R₁₃ are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

14. An electrophotographic imaging apparatus according to claim 9 wherein the photoconductive element further comprises a second charge transport material.

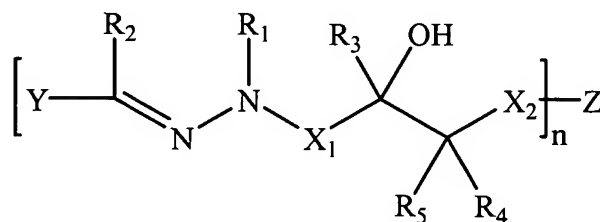
15. An electrophotographic imaging apparatus according to claim 14 wherein second charge transport material comprises an electron transport compound.

16. An electrophotographic imaging apparatus according to claim 9 further comprising a toner dispenser.

17. An electrophotographic imaging process comprising:

(a) applying an electrical charge to a surface of an organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising

(i) a charge transport material having the formula



where n is an integer between 3 and 6;

R₁ and R₂ are, each independently, H, an alkyl group, an alkenyl group, an aromatic group, or a heterocyclic group;

R₃, R₄, and R₅ are, each independently, H, thiol, hydroxyl, carboxyl, an amino group, a halogen, nitro, cyano, an alkyl group, an alkenyl group, an aromatic group, a heterocyclic group, or a part of a ring group;

X₁ and X₂ are, each independently, a linking group;

5 Y comprises an arylamine group; and

Z is a bridging group; and

(ii) a charge generating compound.

(b) imagewise exposing the surface of the organophotoreceptor to radiation to dissipate charge in selected areas and thereby form a pattern of charged and uncharged
10 areas on the surface;

(c) contacting the surface with a toner to create a toned image; and

(d) transferring the toned image to substrate.

18. An electrophotographic imaging process according to claim 17 wherein Y
15 comprises a carbazole group, a julolidine group, or an (N,N-disubstituted)arylamine group.

19. An electrophotographic imaging process according to claim 17 wherein X₁
and X₂, each independently, comprise a -(CH₂)_m- group, branched or linear, where m is
20 an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR₆ group, a CR₇, or a CR₈R₉ group where R₆, R₇, R₈, and R₉ are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a
25 ring group.

20. An electrophotographic imaging process according to claim 19 wherein X₁
is a methylene group and R₃, R₄, and R₅ are each independently an H.

21. An electrophotographic imaging process according to claim 17 wherein Z
30 comprises a -(CH₂)_p- group, branched or linear, where p is an integer between 1 and 20,

inclusive, and one or more of the methylene groups is replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR₁₀ group, a CR₁₁, or a CR₁₂R₁₃ group where R₁₀, R₁₁, R₁₂, and R₁₃ are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a
 5 heterocyclic group, an aromatic group, or part of a ring group.

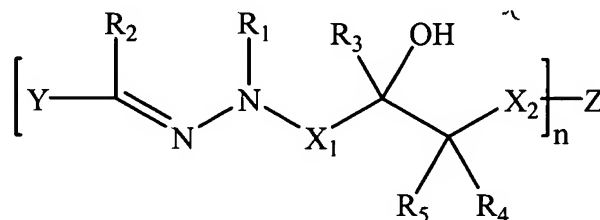
22. An electrophotographic imaging process according to claim 17 wherein the photoconductive element further comprises a second charge transport material.

10 23. An electrophotographic imaging process according to claim 22 wherein the second charge transport material comprises an electron transport compound.

24. An electrophotographic imaging process according to claim 17 wherein the photoconductive element further comprises a binder.

15 25. An electrophotographic imaging process according to claim 17 wherein the toner comprises a toner comprising colorant particles.

26. A charge transport material having the formula



20 where n is an integer between 3 and 6;

R₁ and R₂ are, each independently, H, an alkyl group, an alkenyl group, an aromatic group, or a heterocyclic group;

25 R₃, R₄, and R₅ are, each independently, H, thiol, hydroxyl, carboxyl, an amino group, a halogen, nitro, cyano, an alkyl group, an alkenyl group, an aromatic group, a heterocyclic group, or a part of a ring group;

X₁ and X₂ are, each independently, a linking group;

Y comprises an arylamine group; and

Z is a bridging group.

27. A charge transport material according to claim 26 wherein Y comprises a carbazole group, a julolidine group, or an (N,N-disubstituted)arylamine group.

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28. A charge transport material according to claim 26 wherein X_1 and X_2 , each independently, comprise a $-(CH_2)_m-$ group, branched or linear, where m is an integer between 1 and 20, inclusive, and one or more of the methylene groups is optionally replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR_6 group, a CR_7 , or a CR_8R_9 group where R_6 , R_7 , R_8 , and R_9 are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

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29. A charge transport material according to claim 28 wherein X_1 is a methylene group and R_3 , R_4 , and R_5 are each independently an H.

30. A charge transport material according to claim 26 wherein Z comprises a $-(CH_2)_p-$ group, branched or linear, where p is an integer between 1 and 20, inclusive, and one or more of the methylene groups is replaced by O, S, N, C, B, P, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, an NR_{10} group, a CR_{11} , or a $CR_{12}R_{13}$ group where R_{10} , R_{11} , R_{12} , and R_{13} are, independently, a bond, H, hydroxyl, thiol, carboxyl, an amino group, an alkyl group, an alkenyl group, a heterocyclic group, an aromatic group, or part of a ring group.

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